

Human Health Criteria

EPA Region 10 Perspectives and National
304(a) Updates

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National Perspective

- ▶ Updated EPA national criteria recommendations
- ▶ EPA guidance - 2000 Human Health Methodology
- ▶ National defaults versus local/regional information
- ▶ Region 10 states and tribes (e.g., Oregon, Spokane Tribe)
- ▶ Other states (e.g., Florida, Maine)

Regional Perspective

- ▶ Using best available science
 - ▶ Regional and local (e.g., state-specific) fish consumption data
 - ▶ EPA national criteria recommendations
- ▶ Protecting water quality for higher fish consumers
 - ▶ Tribal treaty rights
 - ▶ Environmental Justice
- ▶ Protecting Downstream Waters
- ▶ Implementation tools
 - ▶ Working with industry/municipalities to meet water quality goals over time (e.g., variances, compliance schedules)

Regional Perspective on FCRs

- ▶ Fish and shellfish have cultural significance
- ▶ High consumers include tribes and certain low-income, minority communities
- ▶ Survey data in Region 10
 - ▶ Preference to use local/regional data
 - ▶ Percentiles of data
 - ▶ Target general population

Additional considerations

- ▶ Suppression
- ▶ Heritage Rates
- ▶ Market fish
- ▶ Anadromous fish and sources of pollution

Alaska-Specific Considerations

- ▶ Tribal framework
- ▶ Marine mammal consumption
- ▶ Fish consumption data availability
- ▶ Prevalence of high-end consumers
- ▶ Cancer risk level in the NTR

National Toxics Rule

- ▶ 1992 NTR was originally issued for 12 states and 2 territories

- ▶ 6.5 g/day FCR
- ▶ current 304(a) recommendations at that time
- ▶ choice of cancer risk level (10^{-5} or 10^{-6})

- Alaska
- Arkansas
- California
- Florida
- Idaho
- Kansas
- Michigan
- Nevada
- New Jersey
- Rhode Island
- Vermont
- Washington
- Washington DC
- Puerto Rico

National Toxics Rule

- ▶ Current status of states in the NTR for human health criteria
 - ▶ Alaska (only for carcinogens)
 - ▶ Rhode Island (only for arsenic and bis(2-ethylhexyl) Phthalate)
 - ▶ Florida (only for dioxin)
 - ▶ Kansas (partial mixture)
 - ▶ California (partial mixture)
 - ▶ Nevada (partial mixture)
 - ▶ Washington (all)
- ▶ PCB update to National Toxics Rule in 1999

304(a) Human Health Criteria Updates

- ▶ CWA Section 304(a)(1) requires EPA to develop and periodically revise water quality criteria accurately reflecting the latest scientific knowledge
- ▶ Represent specific levels of chemicals in a waterbody not expected to cause adverse effects to human health
- ▶ Criteria are not rules and states/tribes may adopt or modify the recommendations based on:
 - ▶ Site-specific conditions
 - ▶ Other scientifically defensible methods
- ▶ EPA must approve any new WQS adopted by a state/tribe before they can be used for CWA purposes

304(a) Human Health Criteria Updates

- ▶ Goals of June 2015 304(a) Updates
 - ▶ Follow current EPA 2000 Human Health Methodology
 - ▶ Incorporate latest science
 - ▶ Be transparent

304(a) Human Health Criteria Updates

- ▶ EPA published updated recommendation for 94 chemical pollutants
- ▶ The recommendations reflect the latest scientific information and EPA policies, including updated inputs for:
 - ▶ Body Weight
 - ▶ Drinking Water Consumption Rate
 - ▶ Fish Consumption Rate
 - ▶ Bioaccumulation Factors
 - ▶ Toxicity Values (reference dose, cancer slope factor)
 - ▶ Relative Source Contribution

304(a) Human Health Criteria Updates

- ▶ EPA did not update human health criteria for the follow pollutants (mostly metals) due to outstanding technical issues:
 - ▶ antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium (III or VI), copper, manganese, methylmercury, nickel, nitrates, nitrosamines, N-nitrosodibutylamine, N-nitrosodiethylamine, N-nitrosopyrrolidine, N-nitrosodimethylamine, N-nitrosodi-n-propylamine, N-nitrosodiphenylamine, polychlorinated biphenyls (PCBs), selenium, thallium, zinc, or 2,3,7,8-TCDD (dioxin)

304(a) Human Health Criteria Updates

► Updated Exposure Inputs

- Body Weight: 80 kg (was previously 70kg).
 - Drinking Water Intake Rate: 2.4 L/day (was previously 2L/day).
 - Fish Consumption Rate: 22 g/day (was previously 17.5 g/day).
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- EPA recommends that states/tribes develop criteria to protect highly exposed population groups and use local or regional data.
 - The preferred hierarchy is: (1) use of local data; (2) use of data reflecting similar geography/population groups; (3) use of data from national surveys; and (4) use of EPA's default consumption rates.
 - State-specific data related to body weight and drinking water intake is also preferred.

304(a) Human Health Criteria Updates

- ▶ Bioaccumulation Factors: use chemical-specific BAFs based on framework in 2000 Methodology to account for chemical accumulation by fish from all surrounding media (e.g., water, food, sediment).
 - ▶ Previously used Bioconcentration Factors (BCFs) which only account for chemical uptake from water column.
- ▶ Health Toxicity Values (RfDs and CSFs): update values for 47 chemicals based on eight peer-reviewed, publicly available sources.
 - ▶ Used EPA IRIS values unless EPA Office of Pesticide had a toxicity value, a non-IRIS source was the only available source, or a more current assessment from a non-IRIS source introduced new science.
 - Reference doses (RfDs): 82% from EPA sources; Cancer slope factors (CSFs): 91% from EPA sources

304(a) Human Health Criteria Updates

- ▶ Relative Source Contribution (RSC): use chemical-specific values ranging from 0.2-0.8 for non-carcinogens based on EPA's 2000 Methodology.
 - ▶ Allows a percentage of the RfD to be attributed to ambient water and consumption of fish from inland and nearshore waters when there are other potential exposure sources (e.g., marine fish, other foods, food packaging, dermal, inhalation, soil).
 - ▶ Previously RSCs were not consistently applied -- only for 17 chemicals based on drinking water standards.
 - ▶ EPA compiled information for each chemical on its uses, chemical and physical properties, occurrences in other potential sources, and environmental releases to develop chemical-specific RSCs.
- ▶ Cancer Risk Level: EPA uses 10^{-6} when calculating 304(a) recommendations for carcinogens.

304(a) Human Health Criteria Updates

Compared to previous 304(a) recommendations:

- ▶ Less stringent (higher):
 - ▶ 25 chemicals (27%)
- ▶ More stringent (lower):
 - ▶ 67 chemicals (73%);
 - ▶ Of those that are lower, 45 of the (almost 70%) are within an order of magnitude of the previous criteria.
- ▶ Two chemicals did not previously have numeric criteria.

Access EPA's updated human health criteria:

<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#hhtable>

Questions?